

WHAT IS CLAIMED IS:

1. A method for modifying the cell cycle of a cell, comprising modifying the level of p193 protein in the cell and/or interfering with the p193 signal transduction pathway in the cell.

2. The method of claim 1, which comprises decreasing the level of pro-apoptotic p193 protein in the cell, so as to suppress apoptosis in and/or increase the proliferative potential of the cell.

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3. The method of claim 1, which comprises increasing the level of pro-apoptotic p193 protein in the cell, so as to induce apoptosis in the cell.

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4. The method of any of claims 1-3, wherein the cell is a mammalian cell.

5. The method of claim 4, wherein the cell is a human cell.

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6. The method of claim 2, which comprises introducing nucleic acid encoding a portion of or all of the p193 protein into the cell in the antisense orientation, so as to decrease the level of p193 protein activity in the cell.

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7. The method of claim 1, which comprises introducing nucleic acid encoding a dominant-negative p193 protein into the cell, so as to suppress apoptosis and/or increase the proliferative potential of the cell.

8. The method of claim 3, which comprises introducing nucleic acid encoding a pro-apoptotic p193 protein into the cell, so as to express said p193 protein and induce apoptosis in the cell.

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9. The method of claim 1, also comprising modifying the level of p53 protein in the cell and/or interfering with the p53 signal transduction pathway in the cell.

5 10. The method of claim 1 or 9, also comprising modifying the level of E1A protein in the cell.

11. An expression vector including nucleic acid encoding a p193 protein.

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12. The expression vector of claim 11 wherein said nucleic acid is in the antisense orientation.

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13. The expression vector of claim 11 wherein said p193 protein is a pro-apoptotic p193 protein.

14. The expression vector of claim 11 wherein said p193 protein includes a dominant negative mutation.

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15. A host cell comprising introduced nucleic acid encoding a p193 protein.

16. The host cell of claim 15 wherein said nucleic acid encodes a pro-apoptotic p193 protein.

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17. The host cell of claim 15 wherein said nucleic acid encodes a p193 protein including a dominant negative mutation.

18. An isolated p193 protein.

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19. The isolated p193 protein of claim 18, having the amino acid sequence set forth in SEQ ID NO:2 or in SEQ. ID NO:4.

20. A composition comprising an isolated p193 protein of claim 18 or 19, and a carrier.

5 21. A method of inducing apoptosis in a cell, comprising expressing in said cell an amount of a pro-apoptotic p193 protein effective to induce apoptosis in said cell.

22. The method of claim 21 wherein said cell is an inappropriately proliferative cell.

10 23. An expression vector comprising a nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4 or an amino acid sequence having at least about 70% identity to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.

15 24. An expression vector comprising a nucleic acid sequence encoding a polypeptide having the amino acid sequence of SEQ ID NO:2 from residue 1 to residue 1152 or of SEQ ID NO:4 from residue 1 to 1173, or an amino acid sequence having at least about 70% identity to the amino acid sequence of SEQ ID NO:2 from residue 1 to residue 1152 or of SEQ ID NO:4 from residue 1 to residue 1173.

25 25. The expression vector of claim 24, wherein said polypeptide suppresses apoptosis and/or induces proliferation in a cell in which it is expressed.

26. An expression vector comprising a nucleic acid sequence having at least 70% identity to nucleotides 62 to 5128 of SEQ ID NO:1 or nucleotides 87 to 5183 of SEQ ID NO:3.

30 27. An expression vector comprising a nucleic acid sequence having at least about 70% identity to nucleotides 62 to 3517 of SEQ. ID NO:1 or to nucleotides 87 to 3615 of SEQ. ID NO:4.

28. A protein of claim 18, said protein being a recombinant protein.

29. A recombinant protein of claim 26, which has the amino acid  
5 sequence set forth in SEQ ID NO:2 or SEQ ID NO: 4 or an amino acid sequence  
having at least about 70% identity to the amino acid sequence set forth in SEQ ID  
NO:2 or SEQ ID NO:4.

30. A recombinant protein of claim 28, which has the amino acid  
10 sequence set forth in SEQ ID NO:2 from residues 1 to 1152 or set forth in SEQ ID  
NO: 4 from residues 1 to 1173, or an amino acid sequence having at least about  
70% identity to the amino acid sequence set forth in SEQ ID NO:2 from residues 1  
to 1152 or set forth in SEQ ID NO:4 from residues 1 to 1173.

15 31. A composition, comprising an antibody to a p193 protein.

32. The composition of claim 31, wherein said antibody is a  
monoclonal antibody.

20 33. The composition of claim 31, wherein said antibody is a polyclonal  
antibody.

25 34. A method for producing a p193 protein, comprising culturing a host  
cell having introduced DNA encoding a p193 protein under conditions suitable for  
expression of said introduced DNA.

35. An isolated apoptosis-associated protein comprising a BH3 domain  
including the amino acid sequence:

Leu Lys Ala His Gly Asp Glu.

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36. An isolated nucleic acid molecule encoding an apoptosis-associated  
protein comprising a BH3 domain including the amino acid sequence:

Leu Lys Ala His Gly Asp Glu.

37. A method for screening an agent for effect on the cell cycle of a cell, comprising contacting a cell having introduced nucleic acid encoding a p193 protein with the agent and assessing the effect of the agent on the cell.

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38. A method of claim 37 wherein the introduced nucleic acid is introduced DNA encoding a pro-apoptotic p193 protein.

10 39. A method of claim 38, wherein the introduced DNA comprises a nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4 or an amino acid sequence having at least about 70% identity to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.

15 40. A method of claim 39, wherein the introduced DNA comprises a nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.